

## Zero Net Energy Building Advisory Council Meeting

January 27, 2010, 9:30AM-12PM

### MEETING NOTES



#### Participants in Attendance:

<b><u>Advisory Council Members</u></b> Betsy Petit, Building Science Corporation Bruce Coldham, Coldham & Hartman Architects Carter Scott, Transformations, Inc. Chris Schaffner, The Green Engineer, LLP David Weitz, Conservation Services Group Ellen Watts, Architerra, Inc. Jim Hunt, City of Boston John Rosenthal, Meredith Management, Co. Jonathan Kantar, Sage Builders Mark Walsh-Cooke, ARUP Mike Browne, Advanced Building Analysis Paul Eldrenkamp, Byggmeister, Inc. Penni Connor, NSTAR Rhonda Spector, MassDevelopment Tim Stout, NGRID	<b><u>Inter-Agency Team Members</u></b> Alex Sherman, DOER Alissa Whiteman, DOER Debra Hall, OCD Elisabeth Krautscheid, CEC-MRET Eric Friedman, DOER Frank Gorke, DOER Ian Finlayson, DOER Janet Curtis, DOER Jenna Ide, DCAM John Ballam, DOER Larry Masland, DOER Marc Breslow, EEA Marybeth Campbell, CEC Phil Giudice, DOER Tom Riley, DPS-BBRS Yaara Grinberg, DOER
<b><u>Absent Members</u></b> Heather Clark, Winn Companies Deborah Rivers, Perkins + Will	Ann Berwick, EEA David Cash, EEA Meg Lusardi, DOER Karl Brown, MSBA

#### **Welcome and Introductions - *Phil Giudice, Commissioner, DOER***

The Commissioner welcomed and thanked the Advisory Council members for their participation. He reviewed examples of initiatives and projects the Commonwealth is undertaking to advance its ZNEB goals including breaking ground at North Shore Community College for the state's first ZNEB building, changes in the state building code, the utility-sponsored Zero-Net Energy Challenge, etc.

He emphasized that the role of the Advisory Council is important because bringing private and public leadership together is imperative to push forward. There should be a focus on buildings that can achieve zero-net goals, such as buildings in the education sector.

#### **Background - *Eric Friedman, Director, Leading by Example Program, DOER***

Following the Governor's challenge at the NESEA Conference in March 2008, the Zero Net Energy Buildings Task Force was established. The following year, the ZNEB Task Force's final report, *Getting to Zero*, was

released in March 2009. The report addresses existing buildings and new construction. The meeting today is a product of one of the report's recommendations; establish a ZNEB Advisory Council that will advise the state and provide expertise.

**ZNEB Progress – DOER staff**

**Existing Buildings (*Utility Programs, DERs, ARRA-HPBP*) – Frank Gorke, Director, Division of Energy Efficiency, DOER**

***Utility Programs***

This past year, DOER has focused on developing three-year utility efficiency plans. Many resources and time were invested in developing this program, and we are proud to say that it is probably the first state-wide program in the nation.

The program itself will entail a more comprehensive process in examining the best cost-effective measures to reach energy efficiency, with a strong emphasis on non-lighting measures. In addition, this is the first time that gas and electric will be integrated, and the utilities are looking into a new program design. There are plans to develop a value proposition to customers, specifically the commercial customers, for example more custom offers/programs that will be more suited to different building types. It is important to remember that the utilities have been capped for many years, so there is need for re-training the sales staff on marketing and outreach. There is currently an RFR out on the street for marketing, education, and outreach. The three-year plans are pending approval.

(UPDATE: *The three-year utility plans were approved by the Dept. of Public Utilities on January 29, 2010.*)

***Deep Energy Retrofits***

2009 has also been a significant year in terms of pushing forward Deep Energy Retrofit (DER) projects. Approximately, 90 people signed up for DERs, many opted-out for various reasons, but there are currently 10-12 projects underway.

***The High Performance Building Program***

There is a lot of energy efficiency activity due to federal stimulus funding. DOER received over \$50M through the U.S. DOE's State Energy Program. Utilizing \$15 million of these funds, DOER established a High Performance Building Program and issued an RFR late last fall. DOER will announce the awardees in 6-8 weeks. Once results are public, all applications will be published online in accordance with the public procurement process. Currently, there are no plans for another RFR.

**State Buildings Code and Building Benchmarking (*ASHRAE Pilot, NGA Policy Academy*) - Ian Finlayson, Manager, Buildings and Climate Programs, DOER**

***Building Codes***

Recently, the Governors from across the country signed a letter stating they will adopt the last IECC code (this was requirement to be eligible for DOE ARRA funding). Per the Green Communities Act, as of January 2010, Massachusetts adopted IECC 2009 as its base building code. The MA Board of Building Regulations and

standards also adopted a “stretch energy code,” which is approximately 20% more stringent than the base code and is optional for municipal adoption. To date, two municipalities have adopted the stretch code, Cambridge and Newton with several others taking steps for passage in 2010.

There will be several public hearings and town meetings in various municipalities throughout the spring regarding the adoption of the stretch code. The main feature of the stretch code is that it is moving buildings from prescriptive to performance standards. MA is taking a leadership role in the U.S. by aggressively pushing performance-based codes.

*One of the comments during the discussion raised the issue that the Development community feels that the Stretch Code unfairly targets new buildings and not retrofitting existing buildings. Unfortunately, there are not well developed programs or code language germane to existing buildings, but the next iteration of the stretch code in 2012 will hopefully be able to address this critical sector.*

### **Training**

Training for building code officials is essential as Massachusetts communities adjust to changes in the building code and adopt the stretch energy code. DOER has conducted outreach to building code officials and organized forty free training sessions this year to begin to train the 1,000 code officials across the state. DOER has contracted with CET and CSG to implement this free training. The training sessions are also available to other interested building professionals for a nominal fee.

With more than 40,000 construction site license holders in the Commonwealth recognizes that additional training opportunities are important to help achieve broad energy efficiency goals. Additional funding to implement expanded training on this scale is needed. If no ARRA funding will be available for code trainings, other funding paths must be determined. DOER will collaborate with CEC to move this training forward.

### **Code Compliance**

Historically, building energy code compliance has been hard to achieve; in a recent survey the Federal government estimates were as low as a 40% compliance rate. Building energy code compliance begins with design and construction, not with the assessors and building officials, so it is essential that across the building/construction/development sector that architects, engineers, developers, construction workers, etc. become well-versed in the new codes and eventually the principles and techniques of zero net energy construction.

### **Building Labeling Pilot Program**

Currently there is no commercial building asset labeling program in the U.S. to complement the existing Energy Star ‘operational’ rating, however, several groups are working to advance this essential benchmarking including U.S. DOE, ASHRAE, and MA DOER. DOER has assembled a small team of public and private stakeholders, and is developing a building labeling pilot program for state facilities with the possibility of engaging some private sector facilities. In addition to working with DOE and ASHARE, DOER is participating in the National Governor’s Association Policy Institute to advance a commercial benchmarking program. There will be a project team meeting of state staff as well as private sector contacts to meet in the next few weeks to further develop this initiative.

### ***Updates***

- There will be important votes in October in North Carolina on the content of the next energy code: the IECC 2012 – The Commercial prescriptive stretch code language is on track for adoption under the IECC 2012 at these final hearings. Any municipality or state can vote at these final hearings, but only members who are present can vote.
- IECC's Green Code, the IgCC will begin public review in March of this year. It is a more performance-based code compared to ASHRAE's 189 Standard. MA DOER has been an advisory participant in this code development process.

**Renewable Energy (ARRA, S-Recs, Wind Siting Reform, Biomass) and State Pilot Projects/Programs** - Eric Friedman, Director, Leading by Example Program

### ***Renewable Energy***

An overview was provided of the state's solar, biomass, and wind initiatives underway. The Green Communities Act created fundamental changes to advance renewable energy, which is evident by the projects the state is developing.

### ***State Pilot Projects***

Related to state construction:

- A new Executive Order for state building construction is being developed and is scheduled to be issued in the next several months; one of its features will be a strengthened Mass LEED Plus.
- There are two ZNEB state buildings in different development phases; North Shore Community College broke ground last fall to begin construction and a second building for the MA Department of Fish and Game is in design.
- There is an RFR out on the street for Energy Enterprise Management System—advanced metering at up to 20 million square feet of state facilities.
- Leading by Example Program developing a building labeling pilot program.

### **Education and Training** - Marybeth Campbell, Director, Workforce Development, CEC

Several accomplishments in 2009: nearly \$4M investment in workforce development; established a statewide network for energy efficiency and building science and training and more. There are several energy efficiency skills initiatives, such as MassGreen, a weatherization training program.

**ZNEB Prioritization: Draft 2010 Plan** – Janet Curtis, Associate Director, Leading by Example Program, DOER, DOER staff, members of the Advisory Committee

### ***Discussion and review of policy/program goals for 2010***

Code Reform and Standards – stretch energy code; state buildings standards; school buildings standard; MEPA GHG Protocol; large retail solar task force; building commission; and green codes.

Comment:

- John Ballam stated that the first MEPA GHG Protocol project has started in Cambridge.

Building Energy Information – building labeling; residential energy information/benchmarking; commercial buildings benchmarking; energy information and tracking database.

Existing Buildings and Pilot Projects – state building performance; high performance buildings program; utility deep energy retrofit (DER) residential pilot programs; utility efficiency plans; MassDevelopment's Devens residential development; state ZNEB demonstration projects; state DER pilot buildings.

Comments:

- Many improvements in state's existing buildings, for example, the Trial Courts have improved their efficiency by approximately 34%.
- John Rosenthal stated that the Yawkey MBTA Station is designed to be zero net energy – and will be another example of a public zneb.
- The new Franklin Regional Transit Building, which is being designed, has a goal of zero net energy
- DCAM will be developing case studies on the North Shore Community College ZNEB project.

Workforce Development, Education, and Training – ZNEB web page; ZNEB case studies; utility outreach and messaging; building code training; weatherization/technical skills training; broader training for building professionals.

A handout was provided to participants by the Clean Energy Center summarizing the key accomplishments and initiatives.

Incentives/Financing – legislation (PACE bonds); expanded utility rebates/whole building assessments; ARRA expenditures; S-RECs program.

Comments:

- Many of the state's cities and towns have received their own stimulus money to advance energy efficiency. For example, the City of Boston has received \$6.5M and is working closely with utilities to ensure coordination on utility funding and energy efficiency. There is more focus on long-term investment, for example working with populations who are just above low-income assistance on energy efficiency and weatherization for multi-family homes.

### ***Setting goals for 2010 – Next Steps for the ZNEB Advisory Council***

- *2010 Priorities*
- *Expanding understanding of ZNEB practices among building sector professionals*
- *Advisory Council Participation*

### ***Open Discussion/Ideas/Feedback/Comments from Advisory Council***

- Who will do the duct leakage testing/sealing (a real challenge as there are very few qualified contractors who do this work) as part of the new building code? Should this be addressed through a guidance document, since there is no real procedure?

- HERS Raters
  - There is a push back from building inspectors because HERS raters are not licensed by the state. There are barriers to becoming a HERS rater because there are no providers for independent raters in the state. There are not enough providers because there is no income stream upfront; payback is about 6 months to up to a year.
  - There is no firm number on certified HERS raters—on RESNET’s website there are about 40 raters in MA, but not all are fully active.
  - Work is being done to address the provider issues. There are 4 small businesses that will begin working this year in MA. For the first three months, only these 4 companies will operate, and after that there will be opportunities for more companies to join. But currently, there isn’t enough staff, or money. Training is accessible, but the challenge is in providers – there is no consistency in how to apply this system.
  - It is important to note that there are other ways to make sure the work has been done without HERS; perhaps working nationally with DOE to work on straight-forward instructions and scope of work.
- Push Commercial Label forward
  - There should be a push for commercial labels, though building owners will be reluctant to publish bad reviews.
  - The hope with the pilot is to address complexities of labeling. Address challenges within state buildings before promoting it broadly.
  - NGA framework provides an opportunity for broad public/private partnership to advance a commercial benchmarking/labeling program
- Energy Raters of MA will slowly add raters. Connect to EEAC sub-committee
- Home performance instructions
- There seems to be a variety of “sticks” within that state’s policy/regulatory framework to move ZNEBs forward—the state needs more “carrots” - What incentives are planned and currently available?
- Definition of “site”
  - Should the ZNEB definition be broadened to allow more projects to be part of the ZNEB goal?
- Pilot projects key to demonstrate transformational opportunities incrementally over 5 to 10 years
  - Existing buildings and pilot projects are very important to get to transformational impact, and to show how to move forward. There should be high investment in such projects so this process will not be duplicated again in 50 years.
  - Once a project is complete, must do performance measurement and tracking as well as market and promote projects (case studies)
  - A question to think about is how do we take the residential pilots and adopt them in the much more complex commercial sector?
- Ensure investment in metering and tracking
  - This provides the ability to track in a more focused manner.
  - Utility funding should require energy tracking/performance monitoring
- Financing a key barrier to address up-front costs
  - Need to come to terms with the different financial climate. Hard environment to get people to take loans.
  - Look for more innovative and easier financing

- Work with MSBA on energy requirements
  - Just now schools are breaking the 40% efficiency goals against ASHRAE 2004.
- Finance school ZNEB challenge
- Link between incentives and access to energy data
  - Energy “hot spots” – London’s lessons learned
- Boston CHP as part of a ZNEB
  - CHP are great opportunities for high energy efficiency, though they are not considered a renewable energy source.
  - CHP won’t be precluded from ZNEB projects; it can be one of the elements in the energy reduction strategy.
- Residential, A/C/ FCM, APS
  - For example, build affordable housing with air source heat pumps in accordance with ZNEB goals and urban heat and climate change policies
- Net positive buildings
  - Also integrate charging stations for hybrid cars and EVs
- Residential pilots: include variety of building types
  - There is no control of house stocks, examine if there is room in the (utility pilot) program to seek out specific home types?
- Pursue PACE financing
  - Currently bill under development in state legislature – led by Senator Matt Patrick
- More “carrots”/incentives for commercial sector
- Commercial sector case studies need to be identified and developed
- Training vs. actual jobs
  - with all of the focus on green job development, it sets an expectation for those who go through the training that they will have a job, which is not always the case

### **Next Steps**

- Potentially establish working groups or targeted meetings to further discuss/address the following:
  - codes
  - labeling
  - workforce development
  - commercial benchmarking program – invite to NGA process
  - residential
  - state
- Promote utility three year plans
  - Tim Stout suggested a meeting later this spring to present key elements of the utility plans, particularly as it relates to advancing zero net energy buildings – would like further discussion and feedback
- Generate key questions
  - Inter-Agency Team to generate questions/ issues that the Advisory Council can engage with
- Provide info up-front – more time for discussion
  - Updates, reading material, info
- Links to ASHRAE, AIA, USGBC

- Establish a ZNEB list serve
- Establish a “Basecamp” type website to create a shared space for the Inter-Agency Team and the Advisory Council to exchange ideas, information, documents, etc.
- The AC agree to three meetings each year instead of the originally proposed two
  - Next meeting at NESEA?

*Notes compiled by Yaara Grinberg, MA DOER*